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SENT TO : EXAMINER PAUL H. MASUR

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SENT FROM : Michael A. Scaturro, Applicant's Attorney

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RE : AGENDA FOR TELCON, MON 8:30 AM

In the Matter of:

Application : **10/598,299**

Applicant(s) : **Edwin Rijpekema**

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Examiner : **Paul H. Masur**

Atty. Docket : **NL040209 [MS-351]**

Title: **DATA PROCESSING CIRCUIT WHEREIN DATA PROCESSING UNITS COMMUNICATE
VIA A NETWORK**

Dear Examiner Masur:

Thank you for accommodating my request for a telephone interview in this matter. As I mentioned in our conversation, I believe that the newly cited reference, i.e., Santiago (US PG Pub 2006/0087969) does not remedy the deficiencies of Khan, Donovan and Hooper.

Proposed Amendment to Claim 1:

1. (Proposed Amendment) A data processing circuit contained on an integrated circuit, comprising:
a network (12) contained on the integrated circuit, that is operable in successive time-slots;
a plurality of data processing units (10) contained on the integrated circuit, interconnected by the network (12), and arranged to send streams of messages concurrently through the network (12), each stream comprising messages that occupy shareable resources (20) in the network (12) in a periodically repeating selection of successive time-slots, a period of repetition (P) being the same for all the streams;
node circuits (22) in the network (12), the node circuits (22) being arranged to forward the messages along multi-node paths through the network (12), each particular stream being assigned a respective stream specific path along which the node circuits (22) forward all messages of the particular stream, the node circuits (22) being arranged to decide whether to forward or discard each message dependent on a measure of seniority of the message in its particular stream, each particular node circuit (22) being arranged to prevent forwarding of a more junior message in the particular stream for which insufficient resources (20) are left because of forwarding of a more senior message from another stream from the particular node circuit (22)

wherein once an initial message has been forwarded from a node circuit, it is ensured that all subsequent messages will be forwarded from that node circuit

DISCUSSION AGENDA

In the Office Action you cite Santago at page 5 for allegedly an element of claim 1 which recites

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.... “node circuits (22) being arranged to decide whether to forward or discard each message dependent on a measure of seniority of the message in its particular stream, each particular node circuit being arranged to prevent forwarding of more junior message in the particular stream for which insufficient resources (20) are left because of forwarding of a more senior message from another stream from the particular node circuit (22).....”

You cite Santiago at par. 61.

[Santiago, par. 61, “*The different subflows may be associated with different priority levels, so that some subflows have a lesser likelihood of being discarded or being marked for discarding (or other traffic policing function) than other subflows of the same flow. Thus, during periods of high transfer rates from a flow, the allocation of remaining bandwidth for that flow will be*

biased towards packets associated to subflows of higher priority] Packets are assigned a priority level and are discarded according to that priority level when resources are low.

Pars. 61 - 63 of Santiago state -

[0061] The present invention provides such a system and method, and provides for hierarchical policing of a data stream. **The data stream may be parsed or otherwise classified into one or more traffic flows, and each flow may be parsed or otherwise classified into subflows.** The different subflows may be associated with different priority levels, so that some subflows have a lesser likelihood of being discarded or being marked for discarding (or other traffic policing function) than other subflows of the same flow. **Thus, during periods of high transfer rates from a flow, the allocation of remaining bandwidth for that flow will be biased towards packets associated to subflows of higher priority.**

[0062] A data stream in the context used herein refers to any information or content that may be represented via a communication signal. Therefore, "data" is used in a generic sense, and may include applications, audio, video, documents, etc. or other information that may be transmitted. In accordance with the present invention, the data stream entering a network node or other module where policing will occur is parsed or "classified" into flows and subflows.

[0063] Classification into flows and subflows may be based on any desired packet characteristic, parameter, field, etc. For example, in one particular embodiment of the invention, flow and subflow classification is based on protocol layer information. Each packet arriving at a particular interface is associated with zero or one flow. Each packet associated with a flow can also, but not necessarily, be associated with a subflow. An exemplary approach to flow and subflow classification is set forth in FIG. 6, where protocol layer information is used to identify flows and subflows.

General Points of Distinction

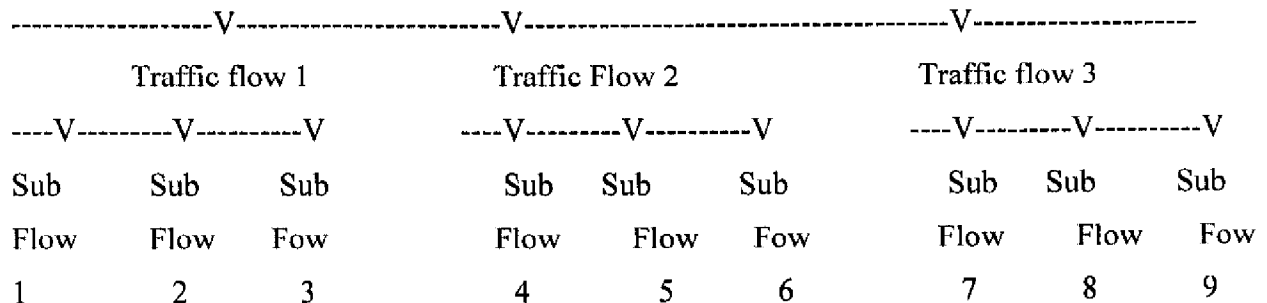
- (1) Santiago discloses a single stream, claim 1 recites multiple streams**
- (2) Santiago employs a contention resolution scheme, only during periods of high transfer rates**
- (3) Santiago performs contention resolution by allocating remaining bandwidth to subflows (of the same stream) having higher priority, the invention operates according to a different contention resolution mechanism.**
- (4) There is no decision process in Santiago's contention resolution scheme regarding whether or not a stream having a higher priority leaves sufficient resources.**
- (5) The method of the invention teaches a different mode of contention resolution. According to the invention, once an initial message has been forwarded from a node**

circuit, it is ensured that all subsequent messages will be forwarded from that node circuit, since newly arising periodic streams that contend for resources an integer number of network periods later will always be less senior.). A node circuit forwards a message from a particular stream only if messages with higher seniority from previously started streams leave sufficient resources. Otherwise the message is not forwarded. (SEE PROPOSED AMENDMENT TO CLAIM 1)

Santiago does not teach the recited claim element because Santiago teaches a different priority scheme involving only a single stream that operates according to a different protocol. In particular, Santiago, at par. 61, discloses that a data stream is parsed into different traffic flows, which are in turn divided into different sub-flows, where the different sub-flows are associated with different priority levels. *The different subflows may be associated with different priority levels, so that some subflows have a lesser likelihood of being discarded or being marked for discarding (or other traffic policing function) than other subflows of the same flow. Thus, during periods of high transfer rates from a flow, the allocation of remaining bandwidth for that flow will be biased towards packets associated to subflows of higher priority*

For example, in Santiago teaches a Single Data Stream 1 is divided into one or more Traffic flows (1,2,3) which are in turn divided into one or more sub-traffic-flows (1,2,3.....9)

Data Stream 1



In contrast to Santiago, the invention discloses a contention reslution scheme for a **plurality of different data streams that operates in a different manner than that taught by Santiago.**

INVENTION

Data stream 1 from node circuit 1 - packets sent first (all packets have higher seniority over packets from data streams 2 and 3, since they are launched later.

Data stream 2 from node circuit 2 - packets sent

Data Stream 3 from node circuit 3 – packets sent

Specifically, at page 3 of the specification, it discusses multiple streams and the mode of operation

(Page 3 of the Specification)

It states that the node circuits arbitrate whether messages get access to sharable network resources (such as communication lines between node circuits) on the basis of a seniority of the messages in **their particular streams** (i.e. the number of messages that has preceded the message since the start of the particular stream). **A node circuit forwards a message from a particular stream only if messages with higher seniority from previously started streams leave sufficient resources. Otherwise the message is not forwarded.** The seniority may be indicated for example in a field in the messages, which is read by the node circuits to determine seniority. **In this way, once an initial message has been forwarded from a node circuit, it is ensured that all subsequent messages will be forwarded from that node circuit, since newly arising periodic streams that contend for resources an integer number of network periods later will always be less senior.**

Multiple Streams taught by claim 1

Referring to Claim 1, it recites that more than one stream is sent through the network. It specifically recites, “streams of messages sent by a plurality of data processing units”.

a plurality of data processing units (10) contained on the integrated circuit, interconnected by the network (12), and arranged to send **streams of messages concurrently through the network (12)**, each stream comprising messages that occupy shareable resources (20) in the network (12) in a periodically repeating selection of successive time-slots, a period of repetition (P) being the same for all the streams;

Kind Regards,

Michael Scaturro
Outside Counsel
Philips Corporation
Garden City, NY
Tel. No. : (516) 414 2007